National Institute of Environmental Health Sciences

The climate footprint: A practical tool to address climate change

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Abstract:

Waternet supplies clean and safe drinking water to the homes of almost one million Amsterdam citizens, and also collects and treats the resulting wastewater, ensuring its safe discharge back into the water system. Climate change poses a growing challenge. Firstly Waternet is affected by the consequences of climate change, such as longer periods of drought and heavier bursts of rainfall. Secondly, the company also plays a role in causing climate change, as emissions from the Amsterdam water chain contribute to global warming. This paper aims to focus attention on mitigation as an inseparable part of adaptation-programmes. The Climate Footprint methodology is applied to the integrated Amsterdam water chain: from the point of withdrawing water from the surface/ groundwater water system for drinking water production, to the point of returning the purified wastewater to the surface water/groundwater system. In-between, the water is pretreated with chemicals, transported, purified by dune-filtration, again treated for drinking water quality, distributed over the area of Amsterdam, used in households and industries, collected from there by sewers and pumps, transported to purification plants and finally again treated with chemicals and purified to end with acceptable surface water quality. The whole process generates CO2-emissions in three different ways: • Sewage treatment transforms the remains of human food consumption into CO2. These emissions do not originate from fossil fuels, but from food. They remain in a short carbon cycle and do not contribute to global warming. In fact, the sludge remaining from the purification plant is an important energy source. • Transport and purification processes require energy; this results in direct emissions e.g. in the case of fuel or natural gas use, and indirect emissions in the case of electricity. • The use of chemicals and materials for construction, transport systems, and all other facilities and services to keep the system running does require suppliers of these goods and services to consume energy and thus causes indirect emission. An inventory of these three different types of emissions is made for the (about) 1990 situation, the 2004 situation, and prognosticated for the 2007 situation. The 2004 situation reveals a 0.16 ton CO2 equivalent emission per person. Compared to the worldwide 4 ton emission per person, this would mean a 4% contribution from the urban water system. With all the improvements scheduled, a 50% elimination of greenhouse gas emissions looks attainable for the 2007 situation. Further possibilities for emission reductions may be found by talking to suppliers about the indirect emissions. © IWA Publishing 2007.

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Resource Description

Communication: ☒

resource focus on research or methods on how to communicate or frame issues on climate change;

surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Other Communication Audience: Water managers

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Food/Water Quality

Extreme Weather Event: Drought, Flooding

Geographic Feature:

resource focuses on specific type of geography

Freshwater

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : The Netherlands

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content